University of Science and Technology of Hanoi

BASIC PROGRAMMING

LABWORK 1: Starting with C and working with Variables, Data Type, Operators

Exercise 1:
Introduction to C Programming:

- Install: MinGW(http://mingw-w64.org), gcc/g++
- Install Visual Studio Code (VSC): https://code.visualstudio.com/ , install extensions: C/C++, Code Runner.
- Create a C program, example: "hello.c" (in lecture 1) to print out on screen "Hello World"
- Compile and run the file with gcc/g++
- Run C program in terminal VSC.

Exercise 2:
C Input and Output functions:

- Using C output function `printf` to write a simple program such as "Hello USTH World".
- Using C output function `printf` to display different types of variables such as int, float, double, and char.
- Use C input function `scanf` read a string from the keyboard and display the string to the screen.
- Use C output function `printf` to display some special characters

Character	Description	Character	Description
\n	Represents a newline	\?	Insert a question mark (?)
\v	Represent a vertical return	\"	Insert a double quote (")
\t	Represents a horizontal tab	\'	Insert a single quote (')
\b	Represents a backspace	\\	Insert a backslash (\)

Exercise 3:
Write a program to output the following text exactly as it appears here by using printf one time only:
"This's our C programming course".
"Welcome to the first tutorial class".
"Happy New Year!".

Exercise 4: Write a C program to calculate an area and circumference of a circle with a preassigned radius and with a radius input from the keyboard.

Exercise 5: Write a C program to calculate a value of a polynomial $ax^2 + bx + c$ with three known constant parameters a=1, b=2, and c=1 and the variable x input from the keyboard.

Exercise 6: Use math functions in C standard library to calculate a value of the following expression
$3a - b^3 - 2\sqrt{c}$ with three parameters a, b, and c input from the keyboard.